REPORT ON THE EVALUATION OF

THE CATAWBA TIMBER BARITE HILL TRACT

McCORMICK COUNTY, SOUTH CAROLINA

SEPTEMBER 2, 1980

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CLAY WINNARD

DRESSER INDUSTRIES | DRESSER

Oilfield Products Group

Inter-Office Correspondence

To E.R. Woodside

From: F.B. Fitzgerald

Copy to: Joe P. Simpson

Date: September 2, 1980

Subject: South Carolina Barite Project

History

In the fall of 1977 Continental Oil Company geologists casually indicated that they had found barite in association with sulfides during an extensive exploration program in the southeastern United States. At this time they were in the market for a joint venture partner for their entire program, but said they were not in a position to show their data to Dresser.

Subsequent scouting revealed that part of Conoco's southeast program centered in the McCormick, South Carolina-Lincolnton, Georgia area. Additional investigation revealed that the most impressive mineralization in the area was on a 150 acre tract just south of McCormick belonging to the Catawba Timber Company, a subsidiary of Bowaters Paper Company. Similar but less exposed mineralization was also found on two other tracts owned by the Brunswick Paper Company, which is a subsidiary of Scott and Mead Paper Companies.

Dresser made initial contact with Catawba in the middle part of 1978 and a preliminary agreement was signed in May of 1979. The initial deal involved a $20,000 cash payment and a minimum $25,000 drill commitment. During the 2nd and 3rd years of the agreement the land costs escalate to $40,000/year. At the time that the development stage of the program is reached, Catawba has the choice of a straight lease agreement with purchase of the property by Dresser for $396,000,

a five percent override and $2.50 per ton escalating barite royalty or a 50-50 joint venture arrangement with details to be worked out.

Program

The initial program was to test the #1 or main zone as a barite source with some hope for a metals byproduct. Since the baritic material obviously required benefication, the tests were designed to define tonnages sufficient to justify a plant. Drilling started in 45 degree inclined holes from the northwest designed to cut the central part of the main zone at 150-250' depths.

The impressive amount of sulfide in the holes, especially in the middle or #2 zone, caused the drilling program to be expanded to test the #2 zone and in some cases the #3 zone as well. Early drill data was supplemented by surface mapping in determining the character of the expended program. Preliminary assay data indicated that the real potential in the property was in defining 1-2 million tons of gold and silver bearing material within open pit range in the middle zone.

Drilling was started in early June 1979 and continued to late July 1980. Seventeen holes were attempted for a total of 8,928' of drilling. The holes averaged 525', but ranged from 895' to 159' in depth. The holes have tested nearly 1,000' of strike length on approximately 100' centers. In addition, several holes were designed to cut at various depths within the same section perpendicular to strike.

2,585' of 3' wide by up to 13' deep trenches were cut in July 1980. It is estimated that these went into bedrock over 80% of the time. They were sampled continuously in 5' increments and mapped

using the sample flags as detailed guides.

In retrospect, it would have been better to have done the trenching earlier in the program. It is also obvious that the trenching should be extended now that the assay results are known.

Additional shallow drilling in the main zone and perhaps a hole on the north side of the property should be considered.

Assay and Metallurgical Procedure

Assay work was done by several labs, including Dresser's Houston lab, Skyline, Union, Blue Ridge and Mountain States. Several labs were used because some labs were limited in methods, there was a desire to recheck results and there was a tremendous delay in obtaining results in the western labs. All of the recent assay has been done by Blue Ridge because of a short turn around time.

The methods used were atomic absorption with occasional checks by fire assay. The labs assure us that the results are comparable to fire assay when values are 10 ppm or less. We see variations of $\pm$ 1 ppm in the 1-10 ppm range between the methods. It is said that it is very difficult to get reproducible results for gold and we have found this is true, even within the same lab. We are, however, confident that the analytical data accuracy is within the same order magnitude as the other facets of this program.

The Mountain States lab was sent a 500 lb. selected sample for metallurgical testing. The results of this test appear to be the single most important factor in determining the viability of this program. There is some question if these results would be the same as those encountered in actually mining the property.

Geology

The area is situated near the eastern edge of the Carolina State Belt, an area of metamorphosed sediments and volcanics. More specifically, sulfide and related mineralization occur near the top of an acid volcanic pile formed on the northeast flanks of the Lincolnton metadacite belt.

The rocks in the area tested are steep dipping to vertical. Little is known of the structures present but folding and late faulting are not apparent in the restricted area investigated. There is a strong suggestion that the volcanic pile did have some topographic expression at least in the final stages of volcanism which had a pseudostructural effect on adjacent units.

The rock types present are predominately felsic tuffs. The tuffs have undergone low grade metamorphism to sericitic schists for the most part. These were originally fine grained to lithic in character and the lithic sections are still clearly discernible. It appears that the schistose sections are better developed away from the vent where the original material was finer grained and perhaps mixed with other fine grained sediments. There is more lithic material nearer to what is thought to be the higher parts of the pile. The mineralization appears to have some affinity for the lithic zones.

Overlying and perhaps contemporaneous with the tuff section is a finely laminated chlorite schist which was originally an argillite. Some tuffs do occur in the argillite section but these are thin and chloritic. Chloritic tuff also occurs on the flanks of the volcanic pile.

Between the tuffs and the argillite is a dacite flow 20-30' thick which appears to be one of the best markers in the entire section. Other dacite units occur in one or two holes within the tuff section. These are not persistent and are of little use as markers. It is unclear if they are flows or dikes.

Also near the top of the tuff section, in the chloritic tuffs on the flanks of the pile, there are what appear to have been carbonate zones up to 20-30' thick. In one or two cases the units still fizz in dilute acid. Talc and actinolite are common in these zones. They thin markedly over the pile.

Mafic rocks are very abundant in the section with units of up to 50' thickness. These rocks are nearly parallel to bedding on the flanks of the pile but do cross cut in the center of the area tested. The composition appears to be basaltic, but extensive epidotization is present.

Alteration is present as a kaolinized unit up to 50' thick. Sericite, which may be of hydrothermal origin, was noted in some zones but is difficult to distinguish from metamorphic material. Silica is present as chert, white quartz veins, and what appears to be silicified tuff. The cherty material is frequently associated with barite. Other relationships between silica and mineralization have not been established but undoubtedly exist as this is a common association in other Piedmont deposits.

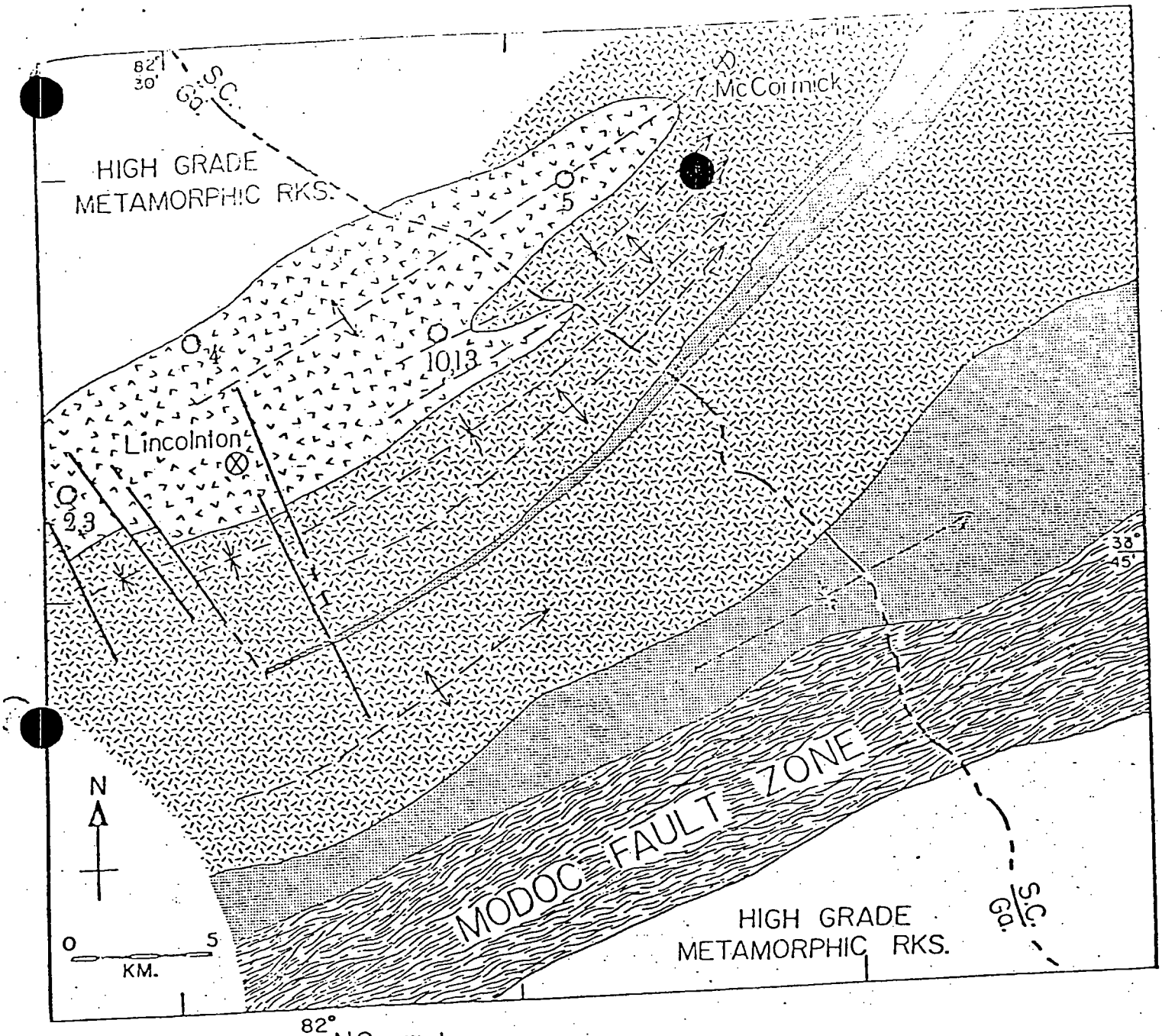
Sulfide mineralization occurs as all gradations between 40' of massive pyrite to a mere dusting of pyrite in the tuff. Pyrite is by far the most abundant sulfide but sphalerite, chalcopyrite, chalcocite, tetrahedrite, and to a lesser extent galena are also

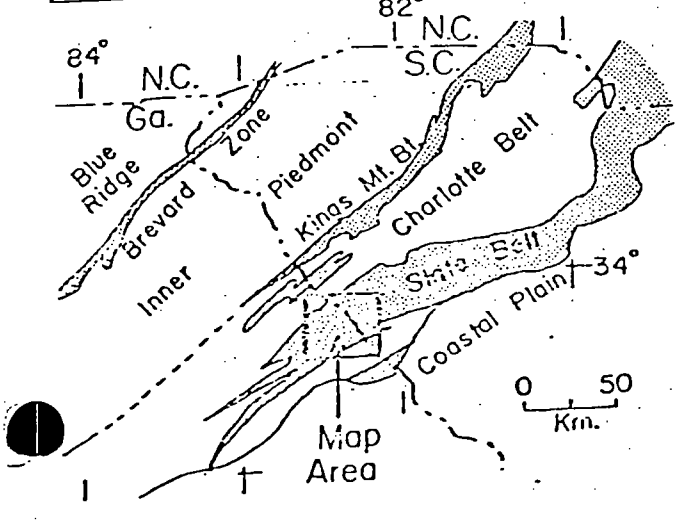
present. Some of the intervals assayed include 6.5' of 13% Zn, 4.5' of 2.9% Cu, nearly 1 oz. silver but more often silver in the 1/3 to 1/2 oz. range, visible gold in the core which assayed over 1/3 oz., and cobalt of over 1/2 lb.

Barite, the original target commodity, was less abundant in the drill holes than on the original outcrop. On the surface the barite content is estimated to exceed 20% over 100' or more. In the core the barite did not exceed 50% over a few feet or 2 or 3 feet of solid barite, although it does occur widely through the section.

It was thought that the mineralization originally occurred in 3 zones. To a degree this is true but the middle and main zones do merge and it is at times difficult to assign a unit to a specific zone. Correlation is likewise speculative.

The sulfide zones in the lower part of the pile show some lateral persistence but are relatively thin as shown by the #3 zone which extends onto the adjacent Dorn-Bullen leases. Sulfide content increases within the top few hundred feet of the pile and includes massive sulfide zones as well as thick zones of disseminated sulfides of both pyrite and copper. There is the suggestion that part of the massive sulfide zones are more common in the coarser clastic lithologies of the volcanic pile. One zone with good values does occur near the tuff-sediment interface. Trace zinc carries into the overlying argillite.

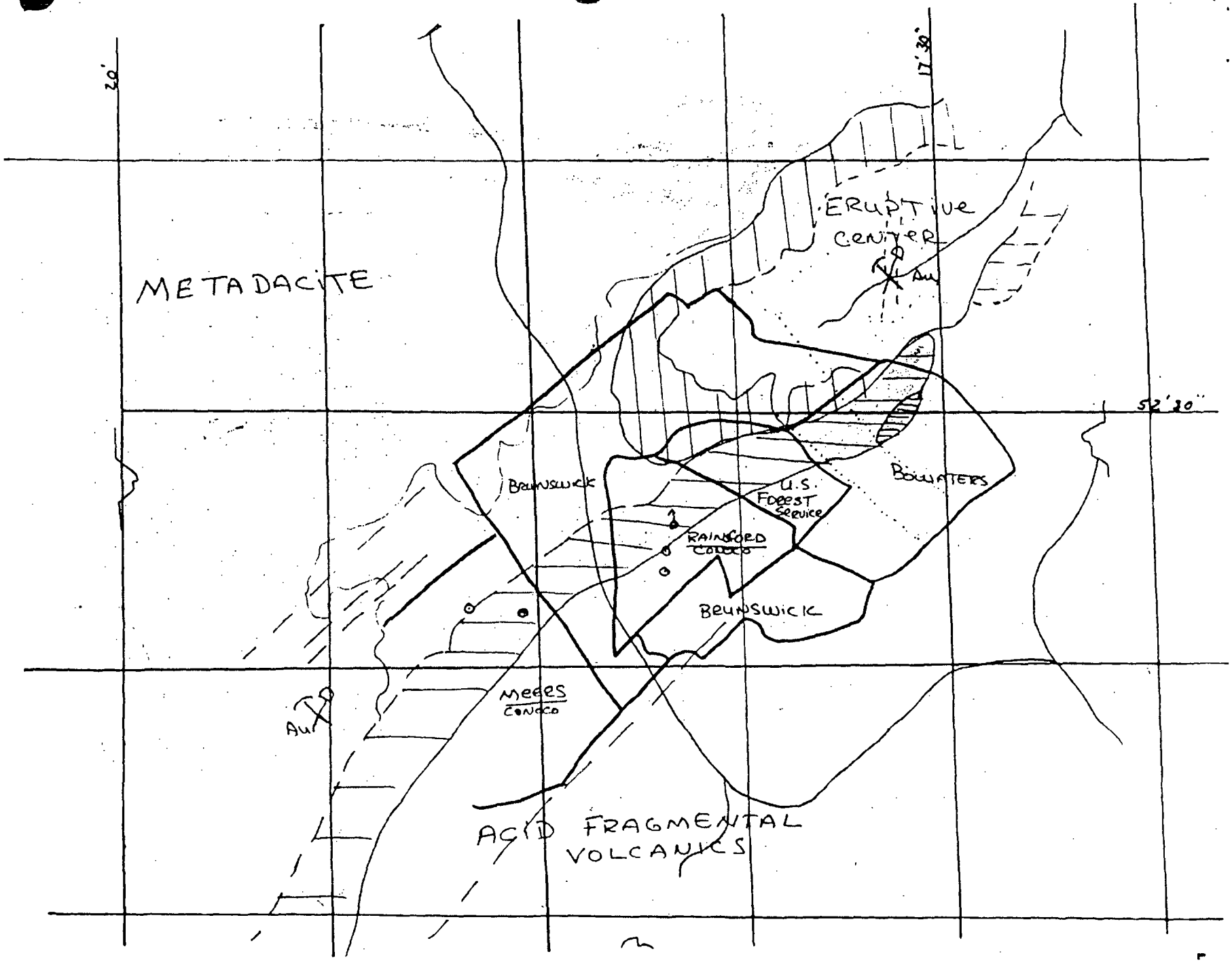




LITTLE RIVER SERIES

- Upper Sedimentary Sequence
- Felsic Pyroclastic Sequence
- Lincolnton Metadacite

- Anticlinal Axis
- Synclinal Axis
- High Angle Fault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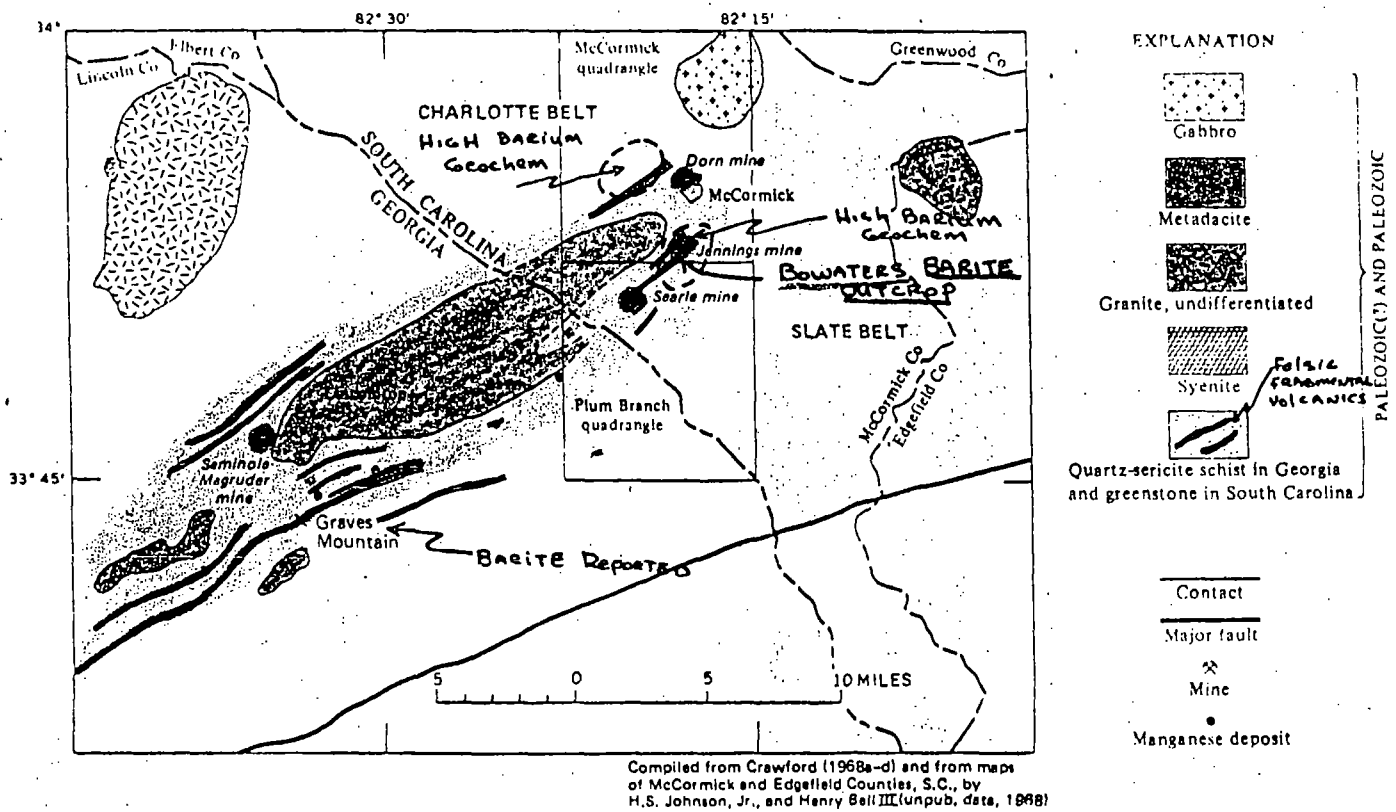

FIGURE 1.—Index map showing some geologic features in South Carolina and Georgia, and location of the McCormick and Plum Branch quadrangles.

EXPLORATION DEPARTMENT

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ANALYSIS OF EXPENDITURES — South Carolina Barite

_____, 19 79

General Expense

1.	Indirect Charges	$
2.	Staff Labor	
3.	Casual Labor	3,100.00
4.	Technical Consultants	6,615.47
5.	Expense Accounts, Fares	2,921.58
6.	Undistributable	

Office Operation

7.	Office Rentals, Utilities	1,094.53
8.	Supplies, Equipment, Postage	
9.	Telephone, Telegraph	167.95
10.	Typing, Reproductions	

Field Operations

11.	Geophysical Contracts	
12.	Geophysical, Geochemical Equipment	
13.	Topographical Survey Contracts	
14.	Aircraft, Aerophotos	
15.	Motor Vehicle Cost	
16.	Surface Trenches, Assays	64.14
17.	Materials and Supplies	388.01

Property Acquisition & Tenure

18.	Option Payments, Lease Rentals	20,000.00
19.	Staking, Holding Claims	
20.	Title Search, Legal Fees	

Drilling Costs

21.	Site Preparation, Access Roads	75.00
22.	Mobilization, Moving, Waiting	
23.	Footage or Drilling Time	34,374.64
24.	Reaming, Cementing, Casing	
25.	Water Haulage	
26.	Core Boxes & Storage	
27.	Surveying, Core Assays	5,731.52
28.	Supplies, Bits, Pipe	
29.	Other Drill Costs	

Total for Month of _____, 19 ____	$
Total— _____	$
Total— _____ To _____	$ 74,532.84

NOTE: No staff labor is included.

EXPLORATION DEPARTMENT

ANALYSIS OF EXPENDITURES — South Carolina Barite

_____, 19 80

General Expense

1.	Indirect Charges	$
2.	Staff Labor	
3.	Casual Labor	3,600.00
4.	Technical Consultants	4,377.40
5.	Expense Accounts, Fares	7,088.61
6.	Undistributable	

Office Operation

7.	Office Rentals, Utilities	2,339.70
8.	Supplies, Equipment, Postage	
9.	Telephone, Telegraph	594.07
10.	Typing, Reproductions	

Field Operations

11.	Metallurgical Tests	5,666.00
12.	Geophysical, Geochemical Equipment	
13.	Topographical Survey Contracts	
14.	Aircraft, Aerophotos	
15.	Motor Vehicle Cost	3,430.87
16.	Surface Trenches, Assays	18,882.06
17.	Materials and Supplies	409.09

Property Acquisition & Tenure

18.	Option Payments, Lease Rentals	40,000.00
19.	Staking, Holding Claims	
20.	Title Search, Legal Fees	

Drilling Costs

21.	Site Preparation, Access Roads	3,299.50
22.	Mobilization, Moving, Waiting	
23.	Footage or Drilling Time	109,813.91
24.	Reaming, Cementing, Casing	
25.	Water Haulage	
26.	Core Boxes & Storage	
27.	Surveying, Core Assays	5,731.52
28.	Supplies, Bits, Pipe	
29.	Other Drill Costs	

Total for Month of _____, 19 ____	$
Total— _____	$
Total— _____ To _____	$ 205,232.73

NOTE: No staff labor is included.